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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,227	10/17/2001	Dmitri E. Nikonov	42390.P10601	7399

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Jan Carol Little
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025

EXAMINER

WONG, ERIC K

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/982,227

Applicant(s)

NIKONOV ET AL.

Examiner

Eric Wong

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 15-18 and 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 15-18 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings were received on 11/24/2002. These drawings are objected to by the examiner. As noted in prior office action, Figure 1 should be designated by a legend such as -- Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Response to Arguments

2. Applicant's arguments with respect to claims 1-6 and 7-30 have been considered. Applicants submit that Bazylenko fails to each and every element of the invention and points out that Bazylenko lacks a set of waveguide elements coupled to the outputs of a set of optical amplifiers, and the AWG having a star coupler coupled to the waveguide elements.

Bazylenko discloses an arrayed waveguide grating device with a set of optical amplifiers (670, Figure 13). The set of amplifiers are all coupled to waveguide elements. It is noted that any waveguide structure can be considered a "waveguide element". In Bazylenko, numerous waveguide elements are included, including those that are coupled to a coupler (160 and 200, Figures 2, 4). Because Bazylenko does not explicitly disclose a star coupler, applicant's arguments under 35 U.S.C. 102 (e) are considered, but are in moot in view of the new ground(s) of rejection.

It is further noted that claims 11-14, 19-20 and 22-30 have been cancelled.

It is further noted that United States Patent Number 6,137,939 to Henry et al. in prior office action discloses the use of star couplers.

Art Unit: 2874

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7-10, and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Number 6,549,688 to Bazylenko and in further in view of United States Patent Application Publication 2003/0044153 to Bazylenko.

As to claim 7, Bazylenko discloses in figure 13, a semiconductor optical device comprising:

An integrated optical circuit having:

A set of optical amplifiers formed in the integrated optical circuit and coupled to the input waveguide elements (660); and

An arrayed waveguide grating (AWG) formed in the integrated optical circuit and coupled to the set of optical amplifiers (570);

A set of waveguide elements coupled to outputs of the set of optical amplifiers,

But fails to explicitly disclose the AWG having a star coupler coupled to the waveguide elements.

It is noted that star couplers are common in the art of optical waveguide multiplexing and demultiplexing in the arrayed waveguide art. In addition, 2003/0044153 to Bazylenko teaches the use of star couplers (92 and 93, Figure 5)

Art Unit: 2874

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a star coupler since it was known in the art that star couplers are used to couple light in an arrayed waveguide grating device.

As to claims 8, and 9, the AWG is coupled to a set of optical amplifiers via a set of input/output waveguide elements (180, 200, Figure 2)

As to claim 10, it would be inherent that an optical amplifier connected to waveguide elements would have a gain portion (column 13, line 66)

As to claim 15, each amplifier is made of varying lengths to compensate for the AWG (Column 13, Lines 3-15).

As to claims 16-18, the set of optical amplifiers are coupled to combine pump light and optical signal light (590, Figure 13)

5. Claims 1-6 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bazylenko in view of 2003/0044153 to Bazylenko and further in view of common knowledge in the art.

As to claims 1 and 2, Bazylenko discloses an integrated optical circuit with a set of amplifiers and AWGs, but fails to explicitly disclose a star coupler and a set of transceivers to couple a set of optical channels into an optical fiber that is input to the integrated circuit.

The use of transceivers is widely known in the art for transmitting, receiving or processing signals and that an optical fiber would be required to send such a signal to a device.

It would be obvious to one skilled in the art at the time the invention was made that a set of transceivers coupled to an optical fiber would be required to process and transmit signals in the optical communications system of Bazylenko.

Art Unit: 2874

As to claim 3, rejection is based on same reasons given above for claim 13.

As to claim 4, rejection is based on same reasons given above for claim 10.

As to claims 5-6, a set of optical signals are demultiplexed and multiplexed in the integrated circuit (Abstract).

6. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bazylenko as applied to claim 19 above and in further view of United States Patent Number 6,137,939 to Henry et al.

Bazylenko discloses an integrated optical waveguide device with an arrayed waveguide grating formed in the integrated circuit, but fails to explicitly disclose a varying shape and width of the waveguide

Henry discloses an arrayed waveguide grating which has widths that vary in order to provide the most optimum performance in an arrayed waveguide grating (Column 3, line 36).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to vary the width of the waveguide to achieve optimum performance of a planar optical waveguide.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

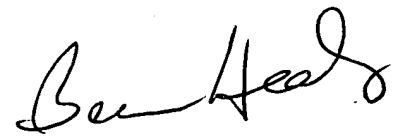
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2874

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EW



Brian Healy
Primary Examiner